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10/599,456

09/28/2006

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EXAMINER

CORRIELUS, JEAN B

ART UNIT

PAPER NUMBER

2611

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/599,456	<b>Applicant(s)</b> SAITO ET AL.	
	<b>Examiner</b> Jean B. Corrielus	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-13 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/19/09, 12/05/08, 11/17/06</u>                               | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 5 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation "a predetermined electric field intensity" in line 7 is vague and indefinite as there is an unclear antecedent in lines 3-4. The same comment applies to similar limitation, recited in claim 13.

Claim 5, lines 10-11, "the signal-meter signal output" lacks of proper antecedent basis.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kennedy et al US patent No. 5,930,693 in view of Hansen US patent No. 5,369,470.

As per claim 1, Kennedy et al teaches an apparatus fig. 1 having an intermediate frequency unit (12, 13 and 14) that converts a broadcast wave signal into

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an intermediate frequency signal and amplifies the intermediate frequency signal see fig. 1; an AGC (Automatic Gain Control) circuit 19 that sets a gain of the intermediate frequency unit (12, 13, 14) depending on the level “electric field intensity” of the broadcast wave signal, as determined by circuit 18, see fig. 1; an AM detecting unit 15 that detects the intermediate frequency signal output from the intermediate frequency unit to produce an audio signal note output of the detector 15 (fig. 1). However, Kennedy et al fails to teach the additional limitations of “a sound quality compensating unit including: a filter unit that extracts a predetermined frequency band of the audio signal; an amplifying unit that boosts or attenuates the audio signal in the predetermined frequency band extracted from the filter unit; and a controlling unit that controls filter characteristics of the filter unit and sets a boosting function or an attenuating function of the amplifying unit, depending on the electric field intensity of the broadcast wave signal.” Hansen teaches a circuit fig. 1A comprising a filter unit 6 that extracts a predetermined frequency band of the audio signal; an attenuation stage 7 corresponding to the claimed “amplifying unit” that attenuates the audio signal in the predetermined frequency band extracted from the filter unit; and a controlling unit (note fig. 1B, component 28 that generates control parameters L...A that controls filter characteristics of the filter unit 6 and sets an attenuating function of the attenuator 7 “amplifying unit”, depending on the electric field intensity of the broadcast wave signal as measure by circuit 29. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Kennedy et al in order to improve signal detection.

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Since such configuration would have had the enhance effect of minimizing or eliminating interference.

As per claim 4, Kennedy et al teaches every feature of the claimed invention but does not explicitly teach the amplifying unit is controlled depending on a signal meter output from the AGC unit. However, examiner notes that it is well known in the art for an amplifier to be controlled by a signal level (meter) from an AGC (note fig. 1 of Kennedy et al, output of 17 or 19). Given that, it would have been obvious to one skill in the art to configure Kenney et al in such a way as to control the amplifier using a signal generated from an AGC circuit, as AGC circuit is known as efficient device capable of stabilizing level of a signal in order where such stability is required.

As per claim 6, see the rejection of claim 1.

5. Claims 2-3 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kennedy et al US patent No. 5,930,693 in view of Hansen US patent No. 5,369,470 and further in view of McNeill et al US patent No. 7,457,757.

As per claim 2, as applied to claim 1 above, Kennedy et al and Hansen et al teach every feature of the claimed invention but does not explicitly teach the additional limitations of a filter unit consists of a low-pass filter that attenuates a high frequency band component of the audio signal and a high-pass filter that attenuates a low frequency band component of the audio signal. McNeill et al teaches an apparatus fig. 7 comprising a filter unit (715 and 720) consists of a low-pass filter 715 that attenuates a high frequency band component of the sound "audio" signal and a high-pass filter 720 that attenuates a low frequency band component of the sound "audio" signal. given that

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fact, it would have been obvious to one skill in the art to have modified Kennedy et al and Hansen with the teaching of McNeill and the motivation to do so would have been the same as provided above with respect to claim 1.

With respect to claim 3, it is the characteristic of the low pass filter to attenuate a higher frequency band component of the audio signal with weakening the electric field intensity in a predetermined electric field intensity range of the broadcast wave signal, and also it is an inherent nature of the high-pass filter to attenuate a lower frequency band component of the audio signal output from the low-pass filter with weakening the electric field intensity in a predetermined electric field intensity range of the broadcast wave signal, hence such limitations are inherently provided by McNeill. Therefore, the claim is likewise rejected as claim 2 above.

As per claim 7, see rejection of claim 2.

As per claim 8, Kennedy et al teaches every feature of the claimed invention but does not explicitly teach the amplifying unit is controlled depending on a signal meter output from the AGC unit. However, examiner notes that it is well known in the art for an amplifier to be controlled by a signal level (meter) from an AGC (note fig. 1 of Kennedy et al, output of 17 or 19). Given that, it would have been obvious to one skill in the art to configure Kenney et al in such a way as to control the amplifier using a signal generated from an AGC circuit, as AGC circuit is known as efficient device capable of stabilizing level of a signal in order where such stability is required.

As per claim 9, the combined references do not explicitly teach the attenuation factor of the low pass filter increases as the intensity of the received signal decreases.

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However, one skill in the art would have understood in order to compensate for signal degradation (decrease in signal intensity) the filter characteristics, such as the attenuation factor, has to be increase. Therefore, it would have been obvious to one skill in the art to increase the attenuation characteristic of the lowpass filter as the level of the signal decrease so as to compensate for the negative contribution of the link to the audio signal so as to enhance quality of the received signal.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Hansen US patent No. 5,369,470.

As per claim 11, Hansen teaches a circuit fig. 1A comprising a filter unit 6 that extracts a predetermined frequency band of the audio signal; an attenuation stage 7 corresponding to the claimed “amplifying unit” that attenuates the audio signal in the predetermined frequency band extracted from the filter unit; and a controlling unit (note fig. 1B, component 28 that generates control parameters L...A that controls filter characteristics of the filter unit 6 and sets an attenuating function of the attenuator 7 “amplifying unit”, depending on the electric field intensity of the broadcast wave signal as measure by circuit 29.

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8. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen US patent No. 5,369,470 in view of McNeill et al US patent No. 7,457,757.

As per claim 12, as applied to claim 11 above, Hansen et al teach every feature of the claimed invention but does not explicitly teach the additional limitations of a filter unit consists of a low-pass filter that attenuates a high frequency band component of the audio signal and a high-pass filter that attenuates a low frequency band component of the audio signal output from the low pass filter. McNeill et al teaches an apparatus fig. 7 comprising a filter unit (715 and 720) consists of a low-pass filter 715 that attenuates a high frequency band component of the sound "audio" signal and a high-pass filter 720 that attenuates a low frequency band component of the sound "audio" signal. Given that fact, it would have been obvious to one skill in the art to have modified Hansen with the teaching of McNeill in order to improve signal detection. Since such configuration would have had the enhance effect of minimizing or eliminating interference.

With respect to claim 13, it is the characteristic of the low pass filter to attenuate a higher frequency band component of the audio signal with weakening the electric field intensity in a predetermined electric field intensity range of the broadcast wave signal, and also it is an inherent nature of the high-pass filter to attenuate a lower frequency band component of the audio signal output from the low-pass filter with weakening the electric field intensity in a predetermined electric field intensity range of the broadcast wave signal, hence such limitations are inherently provided by McNeill. Therefore, the claim is likewise rejected as claim 12 above.



***Allowable Subject Matter***

9. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Monday-Thursday from 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jean B Corrielus/  
Primary Examiner  
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